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First record of *Tantilla alticola* (Boulenger, 1903) (Serpentes: Colubridae) in Cauca state, Colombia, filling distribution gap and notes on natural history

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Abstract: Three specimens of *Tantilla alticola* were collected from sector El Cóndor, Parque Nacional Natural Munchique, municipality of El Tambo, Cauca state, Colombia representing the first record in this state and filling the species' geographical distribution through the western slope of the western cordillera of the Colombian Andes.

Key words: snakes, Munchique, Cauca, hemipenis

The genus *Tantilla* Baird & Girard, 1853 is distributed from southeastern and south-central United States, throughout most of Mexico (including the Tres Marías Islands), Central America (including the Bay Islands) and northern and southeastern South America to northern Argentina and Uruguay, and one species also in Trinidad and Tobago (Wilson 1982a) and contains 63 species currently recognized (Townsend et al. 2013), becoming the most species-rich genera of the family Colubridae (Uetz 2014). *Tantilla alticola* (Boulenger, 1903) (Boulenger's Centipede Snake) is distributed from Nicaragua to Colombia where is known between 91–2,734 m above sea level (a.s.l.) in Antioquia and Chocó states (Wilson 1982b, 1986, 1999; Köller 2008; Castaño-M. et al. 2004), Nariño state (Mueses-Cisneros and Cepeda-Quilindo 2006) and Valle del Cauca state (Vanegas-Guerrero et al. 2015). Here we report a new locality for this species in Colombia (Figure 1).

We collected three specimens of *Tantilla alticola* in the sector El Cóndor, Parque Nacional Natural Munchique, municipality of El Tambo, Cauca state, Colombia (02°43′44.1″ N, 076°56′09.6″ W) between 1,411–1,440 m a.s.l. during the development of a research related with snakes diversity through natural and altered habitats. Specimens were collected under license number 013 of 17 September 2013 issued by Parques Nacionales Naturales de Colombia and are stored in the herpetological collection of the Museo de Historia Natural, Universidad del Cauca (MHNUC) in Popayán, Colombia.

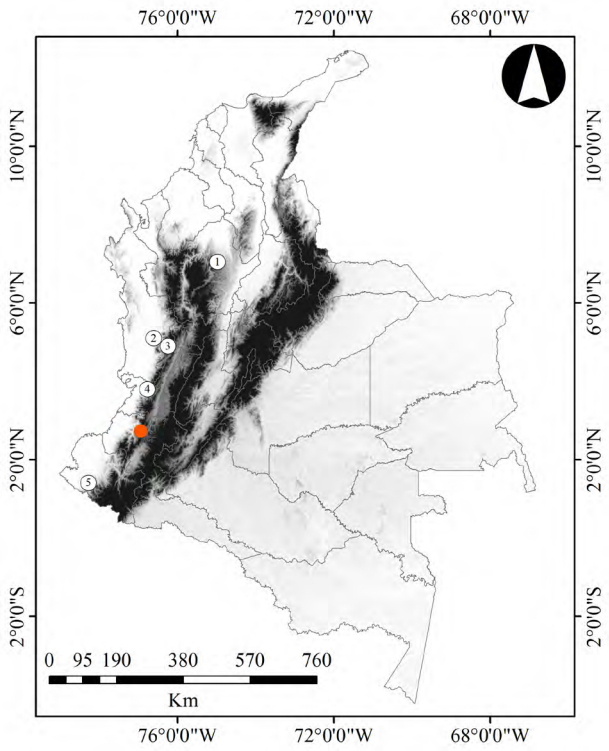

Figure 1. Geographic distribution of *Tantilla alticola* in Colombia. White dots indicate localities previously reported: 1. The type locality "Santa Rita, north of Medellin, Antioquia state, Colombia"; 2. "Peña Lisa, municipality of Condoto, Chocó state"; 3. San José del Palmar, Chocó State; 4. La Delfina, municipality of Dagua, Valle del Cauca state; 5. Corregimiento El Diviso, Vereda Berlín, municipality of Barbacoas, Reserva Natural Biotopo Selva Húmeda, Nariño State. Red dot represents the new locality "sector El Cóndor, Parque Nacional Natural Munchique, municipality of El Tambo, Cauca state". Localities 1 and 2 are estimated from Wilson (1986) and Myers et al. (2013); 3, 4 and 5 from Vanegas-Guerrero et al. (2015).

Species identification was based on the taxonomic key of Wilson (1999) and Savage (2002) according to the characters shown in Table 1 and Figures 2 and 3. *Tantilla alticola* differs from all congeners by the combination of a uniform brown dorsum, immaculate red venter, narrow light nuchal collar, postocular light spot, and by the presence of two enlarged basal spines on hemipenis, with the one on the sulcate side slightly larger than the other. Five other species of *Tantilla* are recorded in Colombia, and can be diagnosed from *T. alticola* as follow: *Tantilla melanocephala* (Linnaeus, 1758) and *Tantilla longifrontalis* (Boulenger, 1896) have a dark nape band, dark dorsal stripes, and immaculate cream venter (Wilson 1992). *Tantilla melanocephala* also differs from *T. alticola* by the presence of three enlarged basal spines on the hemipenis, one larger than the others (see figure 3 in Sawaya and Sazima 2003, for a Brazilian representative of the species); *Tantilla semicincta* (Duméril, Bibron & Duméril, 1854) has a banded or broad striped pattern (Wilson 1990); *Tantilla nigra* (Boulenger, 1914) differs from *T. alticola* by the black dorsum and venter and pale nuchal spots (Wilson 1992); and *Tantilla reticulata* Cope, 1860 has a multilineate dorsum of pale and dark stripes, and reticulate dorsal pattern (Wilson 1986).

The coloration in life of the collected specimens (Figure 2) comprises a head with rostral, internasal and prefrontal scales blotched of orange. A dark brown head cap that involve the final portion of prefrontals, the whole frontal, the major portion of parietals and a variable portion of anterior temporals and two last supralabials interrupted only by orange pigmentation in supraoculars and either upper or both postoculars. Orange spots in supralabials separated by the dark brown coloration surrounding the eyes. A yellowish nuchal collar, that turns darker in contact with the final portion of parietals and posterior temporals, followed by an uniform dark brown pattern without slight paling rows through dorsal and lateral scales that extends to the tip of tail. Venter of head is light orange followed by a reddish color pattern that extend to the tip of tail. Coloration in life changes very fast in preservative (Figures

Table 1. Morphological characters in analyzed specimens of *Tantilla alticola* from sector El Cóndor, Parque Nacional Natural Munchique, municipality of El Tambo, Cauca state, Colombia. Head scales were counted on both sides, and ventral scales were counted following Dowling's (1951) method.

	MHNUC-Se-000498	MHNUC-Se-000500	MHNUC-Se-000503
Sex	♂	♂	♂
Total length (mm)	267	266	250
Tail length (mm)	62	65	58
Dorsal scale rows	15–15–15	15–15–15	15–15–15
Supralabial scales	7/7	7/7	7/7
Infralabial scales	7/7	7/7	7/7
Preocular scales	0	0	0
Postocular scales	2/2	2/2	2/2
Temporal scales	1+1/1+1	1+1/1+1	1+1/1+1
Ventral scales	136	135	136
Subcaudal scales	50	53	50

Figure 2. Coloration in life of *Tantilla alticola* from sector El Cóndor, Parque Nacional Natural Munchique, municipality of El Tambo, Cauca state, Colombia (MHNUC-Se-000498).

Figure 3. Coloration change in preservative of *Tantilla alticola* from sector El Cóndor, Parque Nacional Natural Munchique, municipality of El Tambo, Cauca state, Colombia. Dorsal (left) and ventral (right) views (MHNUC-Se-000500). Scale bar = 30 mm.

2 and 3). The orange or yellowish regions of the head become white or cream and dorsal coloration turns a bit clearer, venter change to cream-pinkish and light cream progressively from the anterior to posterior portion.

The left hemipenis (Figure 4) of two specimens (MHNUC-Se-000498; MHNUC-Se-000500) was prepared following the methods of Myers and Cadle (2003) and Zaher and Prudente (2003). They were both almost maximally expanded with the injection of colored petroleum jelly, and stained with Red Alizarin to intensify the visualization of calcareous spines (Uzzell 1973).

Both specimens exhibit a symmetrical hemipenis (mirror images, see Cole and Hardy, 1981), unilobed, noncapitate, with a simple centrolinear sulcus spermaticus that ends before the apex of the organ; two basal pockets on the asulcate surface, the left deeper than right one (left organ); base of the organ naked on asulcate side, and almost a row of small to median spines lateral to the sulcus spermaticus (right side on sulcate view of left organ). Two basal enlarged spines of almost equal size, one slightly larger on the right side of the lateral surface (sulcate view), and the other on the asulcate surface, to the right of the shallower basal pocket. Hemipenial body covered by spines slightly bigger on the lateral surfaces, and lobe covered with papillate calyces of equal size. The base and the lobe of the organ represent about half of the body size.

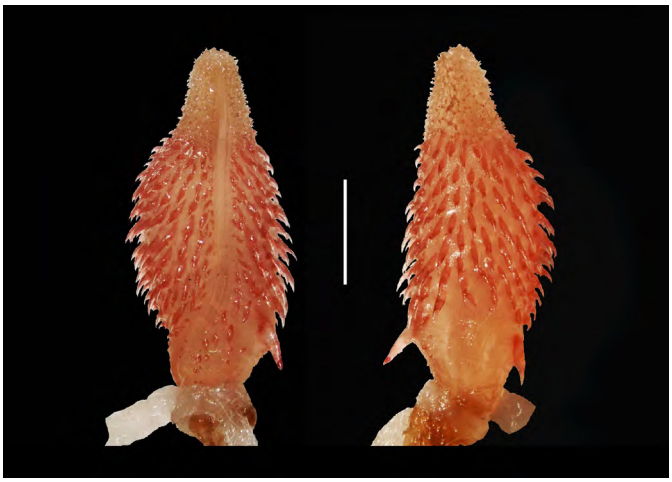

Figure 4. Left hemipenis of *Tantilla alticola* (MHNUC-Se-000498). Sulcate (left) and asulcate (right) surfaces. Scale bar = 2 mm.

In this new locality herein reported *Tantilla alticola* was associated to high anthropic-perturbation areas and habitats of secondary rainforest characterized by the extraction of woody species such as *Quercus humboldtii*, *Humiriastrum procerum*, *Aniba* sp. and *Bactris major*, where is sympatric with *T. melanocephala*. All specimens of *T. alticola* and *T. melanocephala* were found active only during daily hours (8:30–9:28 h; 13:45–14:47 h) while crossing the roads between patches of secondary rainforest or entering to infrastructures. However, other authors report that these species are also active at night (Marques and Puorto 1998; Myers et al. 2013).

This finding of *T. alticola* represents the first record in Cauca State, filling the geographical distribution of this species in the western slope of the Colombian western cordillera.

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